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Pablo R. Rodriguez

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EXAMINER

SURVILLO, OLEG

ART UNIT

PAPER NUMBER

2442

NOTIFICATION DATE

DELIVERY MODE

12/18/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/695,928	Applicant(s) RODRIGUEZ, PABLO R.	
	Examiner OLEG SURVILLO	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24, 26-33 and 35 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-24, 26-33 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Claims 1-24, 26-33, and 35 are pending in the application. No claims are currently amended. Claims 25 and 34 remain canceled. No new claims are currently added. Claims 1-9 remain withdrawn from consideration as a result of an earlier restriction requirement. The applicants are reminded that a complete response to this final Office action should cancel the withdrawn claims.

Response to Arguments

2. Applicants filed a response to the Final Office action under 37 CFR 1.116.

In their response, Applicants argue that Applicants were uncertain as to the meaning and intent of the Examiner's use of bracketing in the non-final Office action, such uncertainty realized only when the Examiner provided further explanation in the Response to Arguments section of the last Office action.

Regarding Applicants' request to withdraw the finality of the last Office action, the request is granted. Therefore, without conceding whether the finality of the last Office action is proper, the finality of the last Office action is withdrawn.

Regarding Applicant's request to verify whether interpretation of Rodriguez's "block of document" to be the same as Applicant's "object of a resource" is correct, the Examiner confirms that such interpretation is correct.

Regarding patentability of claims 10, 12-14, 16-23, and 26-33 over Viswanath et al. in view of Chebrolu, in view of Rodriguez, and in further view of Greer et al.,

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Applicants presented no arguments in their response under 37 CFR 1.116 filed on December 2, 2008 as to why the claims are patentable over the prior art of record.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10, 12-14, 16-23, and 26-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. (US 2007/0118670 A1) in view of an article "Communication using Multiple Wireless Interfaces" by Kameswari Chebrolu et al. (hereinafter Chebrolu) in view of an article "Dynamic Parallel Access to Replicated Content in the Internet" by Pablo Rodriguez et al. (hereinafter Rodriguez) and in further view of Greer et al. (US Patent No.: 5,978,828).

As to claim 10, the preamble has been given patentable weight since the claim body refers back to the preamble. See "the virtual resource" at line 1 of the body.

As to claim 10, Viswanath shows:

receiving, from a computing device [mobile node (12)], an incoming request [mobile node requests access to data services] (par. [0011]);

determining a number of available wireless network interfaces [determining a number of available gateway GPRS support nodes (20) that provide an access to a particular network among the plurality of networks] (par. [0021]), each of the available

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wireless network interfaces communicatively coupled to a distinct wireless network of a plurality of wireless networks [each gateway GPRS support node (20) is communicatively coupled to a distinct wireless network (16)] (Fig. 1); and

transmitting an outgoing request, wherein each outgoing request specifies the available wireless network interface [load balancing requests among gateways (20), wherein each outgoing request includes the IP address of selected gateway] (par. [0016] and [0041]).

Viswanath does not explicitly show retrieving a virtual resource from a remote computer using a plurality of wireless network interfaces. In particular, Viswanath does not explicitly show the remote computer that is communicatively coupled to the plurality of wireless networks, determining a number of objects in the virtual resource, wherein the virtual resource comprises a plurality of objects, and assigning each object in the virtual resource to at least one available wireless network interface, at least one object in the virtual resource being assigned to a different available wireless network interface than another object in the virtual resource.

Chebrolu shows a method for retrieving **data** [retrieved data in Chebrolu that comprises a plurality of packets] from a remote computer [remote host] (Fig. 1) using a plurality of wireless network interfaces (fig. 1; throughout the reference), comprising:

determining a number of available wireless network interfaces, each of available wireless network interfaces communicatively coupled to a distinct wireless network of a plurality of wireless networks that a communicatively coupled to the remote computer (fig. 1; page 327 under sections I. Introduction and II. Architectural Details);

assigning each **block of data** [packet in Chebrolu] to at least one available wireless network interface (page 328 section IV. Scheduling Algorithm), at least one **block of data** [packet in Chebrolu] being assigned to a different available wireless network interface than another **block of data** [packet in Chebrolu] (page 329 section VI. Simulation Results), wherein the **blocks of data** [packets in Chebrolu] are requested via a plurality of the available wireless network interfaces (page 327 section II. Architectural Details); and

transmitting an outgoing request for each **block of data** [packet in Chebrolu], wherein each outgoing request specifies the available wireless network interface assigned to the corresponding **block of data** [packet in Chebrolu] (page 328 under the section IV. Scheduling Algorithm), and wherein the **blocks of data** [packets in Chebrolu] in the virtual resource are requested via a plurality of available wireless network interface (page 327 under the section I. Introduction).

So, Chebrolu teaches a method wherein data is retrieved, the data comprising a plurality of blocks, namely packets, as opposed to a virtual resource comprising a plurality of objects. Therefore, Chebrolu does not expressly recite the claimed limitation of “a virtual resource comprising a plurality of objects”. In the series of Office actions including this one, Chebrolu’s packets are not equated with claimed “objects”. Rodriguez’s “block of document” is interpreted as claimed “object”, as discussed below.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath by retrieving requested **data** from a remote computer using a plurality of wireless network interfaces. In particular, it would have

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been obvious to one of ordinary skill in the art at the time of the invention to have the remote computer that is communicatively coupled to the plurality of wireless networks, and assigning each **block of data** [packet in Chebrolu] of the resource to at least one available wireless network interface, at least one **block of data** [packet in Chebrolu] being assigned to a different available wireless network interface than another **block of data** [packet in Chebrolu] in order to aggregate the bandwidth offered by the individual networks (abstract of Chebrolu).

Viswanath in view of Chebrolu further does not explicitly show determining a number of *objects* in the *virtual resource*, wherein the *virtual resource* comprises a plurality of *objects*.

Rodriguez shows a method for retrieving a virtual resource [document] from a remote computer [server] using a plurality of [multiple TCP connections in parallel] (throughout the reference), comprising:

determining a number of objects [blocks] in the virtual resource, wherein the virtual resource comprises a plurality of objects (pages 457 col. 2 and 458 col. 1 under the section III. Dynamic Parallel Access); and

assigning each object in the virtual resource to at least one available [TCP parallel connection], at least one object in the virtual resource being assigned to a different available [TCP parallel connection] than another object in the virtual resource (page 455 col. 2 under the section I. Introduction).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Viswanath in view of Chebrolu with those of

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Rodriguez, as discussed just above in order to retrieve different portions of the requested resource using multiple TCP connections in parallel and reassemble retrieved portions locally (abstract of Rodriguez, section V. Dynamic Parallel Access versus Parallel Access to a single Server).

Alternatively to, or in combination with Rodriguez, Greer shows that the virtual resource [such as a web page] comprises a plurality of objects (Fig. 3 and 4). Greer also shows determining a number of objects in the virtual resource [sending a request to a server for information about a web page] (col. 8 lines 30-35), wherein the response message from the server includes the number of objects in the virtual resource and the size of each object (Figure 6; col. 4 lines 18-20).

It would have been obvious to one of ordinary skill in the art to modify the method of Viswanath in view of Chebrolu and in further view of Rodriguez by having a virtual resource comprising a plurality of objects and determining a number of objects in the virtual resource in order to efficiently partition the virtual resource from a single document onto multiple links (page 328 section IV. Scheduling Algorithm in Chebrolu).

As to claim 12, Viswanath shows that determining a number of available wireless network interfaces comprises monitoring one or more characteristics of a wireless network interface [monitoring the existence of gateways by formulating a list (32) of gateways] (par. [0021]).

As to claim 13, Viswanath in view of Chebrolu, Rodriguez and in further view of Greer shows that determining a number of available wireless network interfaces comprises monitoring one or more characteristics of a wireless network interface, wherein a signal characteristic is selected from the group of signal characteristics consisting of: signal-to-noise ratio, available bandwidth, congestion, signal strength, connection cost, and bit error rate (Chebrolu, page 328 under section III. Interface Selector Algorithm).

As to claim 14, Viswanath shows that determining a number of available wireless network interfaces comprises monitoring one or more characteristics of a wireless interface stored in a data table in memory [formulating a list of gateways that link to the identified APN] (par. [0021]).

As to claim 16, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that determining a number of objects in the virtual resource comprises querying the remote computer (Fig. 10; col. 8 lines 30-35 in Greer).

As to claims 17 and 30, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that assigning each object to at least one available network interface comprises assigning an object to two or more available network interfaces if the size of the object exceeds a threshold (page 455 col. 2 lines 5-7, 17-20, 29-30; page 456 col. 1 lines 15-23; section III. Dynamic Parallel Access - all in Rodriguez).

As to claims 18 and 31, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that assigning each object to at least one available network interface comprises assigning an object to two or more available network interfaces if the size of the object exceeds a threshold, wherein the threshold is a function of the bandwidth of available wireless network interfaces (page 455 col. 2 lines 5-7, 17-20, 29-30; page 456 col. 1 lines 15-23; section III. Dynamic Parallel Access - all in Rodriguez; page 328 section III. Interface Selector Algorithm in Chebrolu).

As to claims 19 and 32, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that assigning each object to at least one available network interface comprises assigning an object to two or more available network interfaces if the size of the object exceeds a threshold, wherein the threshold is a function of the size of an object relative to the size of other objects in the virtual resource (page 455 col. 2 lines 5-7, 17-20, 29-30; page 456 col. 1 lines 15-23 section III. Dynamic Parallel Access - all in Rodriguez; page 328 section III. Interface Selector Algorithm in Chebrolu).

As to claim 20, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows:

receiving objects over the plurality of assigned wireless network interfaces (page 329 section VI. Simulation Results in Chebrolu); and

collating the received objects to construct the virtual resource (page 455 col. 2 lines 7-9 in Rodriguez).

As to claim 21, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows transmitting the virtual resource to the computing device that originated the incoming request (page 455 col. 2 lines 5-10 in Rodriguez).

As to claim 22, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows a computer-readable medium having computer-executable instructions that is capable of performing the method recited in claim 10 (claims 42-49 in Viswanath).

As to claim 23, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows:

at least one local communication network interface [serving GPRS Support Node (18)] (Fig. 1 in Viswanath) for receiving a request for a virtual resource, wherein the virtual resource comprises a plurality of objects (as discussed per claim 10);

a plurality of wireless network interfaces [Gateway GPRS support nodes (20)] (Fig. 1 in Viswanath; also Fig. 1 in Chebrolu);

a memory module (104) (Fig. 2 in Viswanath); and

a processor (102) (Fig. 2 in Viswanath) executing logic instructions that configure the processor to perform the method steps of claim 10, as discussed above.

As to claim 26, Viswanath shows that the processor polls the wireless network interfaces to determine characteristics of the communication connections managed by the wireless network interfaces [formulating a list (32) of gateways (20) that link to the identified APN] (par. [0021]) [and keeping a record of gateways that recently served requests in round-robin approach] (par. [0033]).

As to claim 27, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that the processor polls the wireless network interfaces on a periodic basis to determine characteristics of the communication connections managed by the wireless network interfaces (page 455 col. 2 lines 20-23 in Rodriguez; section VI. Simulation Results in Chebrolu).

As to claim 28, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that the processor polls the wireless network interfaces in response to a received request to determine characteristics of the communication connections managed by the wireless network interfaces (page 455 col. 2 lines 30-38 in Rodriguez; section VI. Simulation Results in Chebrolu).

As to claim 29, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that the processor assigns objects to wireless network interfaces

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according to an algorithm that maximizes bandwidth (page 455 col. 2 lines 42-48 and page 456 col. 1 lines 1-10 in Rodriguez; section III. Interface Selector Algorithm in Chebrolu).

As to claim 33, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows that the processor is further configured to receive requested objects transmitted across at least some of the plurality of wireless networks (page 329 section VI. Simulation Results in Chebrolu).

5. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. in view of Chebrolu et al., in view of Rodriguez et al., in view of Greer et al. and in further view of Boehm (US 2004/0085944 A1).

As to claim 11, Viswanath shows that receiving the incoming request for the virtual resource comprises receiving the incoming request from a computing device over a radio access network (Fig. 1).

Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer does not explicitly show that the incoming request for the virtual resource comprises receiving the incoming request from a computing device over a local communication network.

Boehm shows that the incoming request for the virtual resource comprises receiving the incoming request from a computing device over a local communication network (par. [0020], Fig. 3)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer by receiving the incoming request from a computing device over a local communication network in order to receive requests from computing devices locally connected to the portable Wireless Internet gateway (Fig. 3, par. [0020] in Boehm).

As to claim 24, Viswanath shows that the at least one local communication network interface comprises a wireless network interface [Serving GPRS Support Node (18)] (Fig. 1) that communicates with mobile devices (12) over a Radio Access Network (24) (Fig. 1).

Alternatively, Boehm shows that the at least one local communication network interface comprises a wireless network interface [a portable gateway (315)] (Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer by having the at least one local communication network interface comprises a wireless network interface in order to enable wireless communication with mobile devices.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. in view of Chebrolu et al., Rodriguez et al., and in further view of Greer et al. and in further view of Nelson (US 2003/0055975 A1).

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As to claim 15, Viswanath shows querying local domain name server (30) for a list of available wireless network interfaces.

Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer does not explicitly show that determining a number of available wireless network interfaces comprises querying the wireless interfaces.

Nelson shows that determining a number of available wireless network interfaces comprises querying the wireless interfaces (par. [0083]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer by having determining a number of available wireless network interfaces comprise querying the wireless interfaces in order to verify that a selected wireless network interface is currently available to handle the request.

7. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. in view of Chebrolu et al, in view of Rodriguez et al., in view of Greer et al. and in further view of Holder (US 2003/0208554 A1).

As to claim 35, Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer shows the processor being further configured to receive requested objects transmitted across at least some of the plurality of wireless networks (section II. Architectural details in Chebrolu).

Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer does not explicitly show the processor configured to transmit received objects over the local communication network interface.

Holder shows that the processor is configured to transmit received objects over the local communication network interface (par. [0004] and [0025]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Chebrolu, Rodriguez, and in further view of Greer by having the processor being configured to transmit received virtual resources over the local communication network interface in order to enable the requesting client to receive response to the request.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLEG SURVILLO whose telephone number is (571)272-9691. The examiner can normally be reached on M-Th 8:30am - 6:00pm; F 8:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Oleg Survillo

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/Andrew Caldwell/
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